

CAMCORDERS

INTRODUCTION

Websites such as YouTube have reignited enthusiasm for amateur movie-making. You can shoot something in the afternoon, edit it in the evening and have it online for the world to see before bedtime. It's an incredible idea, and all you need is a basic video camera and a PC.

Most people use their camcorders to record once-in-a-lifetime occasions such as exotic holidays, weddings or children's birthdays. These are priceless memories and you'll only get one shot at capturing them. Thankfully, modern camcorders are simple to operate, so you shouldn't miss that special moment.

In this month's Labs we have 12 camcorders, costing from just £140 including VAT and ranging from tape-based budget models to camcorders with hard disks capable of shooting high-definition video. Whether you're an internet video pioneer or just a doting parent, there's a camcorder here for you.

Seth Barton

Deputy Reviews Editor



seth@computershopper.co.uk

FRAME ACADEMY



These 12 camcorders, costing between £140 and £800, offer something for everyone – from the budding Bertolucci to the family film-maker

Choosing a... Camcorder

All camcorders are designed to record video, but there's still an amazing variety of models available. This buying guide will explain all the terminology you need to know, and help you choose the right model for your needs.

HIGH STANDARDS

Most camcorders can shoot video compatible with the PAL TV format. This has a resolution of 720x576 pixels, and consists of 50 interlaced frames per second. Interlacing is when each whole frame is recorded and stored as two fields, each of which is made up of only half the picture, so there are actually only 25 full frames captured per second. This standard-definition video will play on any TV with an appropriate video input.

Many of us have now upgraded to high-definition (HD) TVs, and if you haven't got one yet, then the chances are that your next TV will be high definition. HD camcorders have been available for a number of years now, but they're still relatively expensive compared to standard definition models. Resolutions and frame rates vary from model to model, but 1,920x1,080 pixels is a common standard, and gives the user five times the resolution of a standard definition camcorder's image.

It is worth noting that a higher resolution doesn't necessarily mean higher-quality video. However, you'll certainly appreciate the extra pixels when watching your recording on a large HD TV – which is almost certain to be the case when you're viewing your recordings in years to come.

SENSOR SENSIBILITY

Whether you're after a standard-definition or HD camcorder, it's the sensor behind the lens that makes it all possible. This detects the light coming through the lens, which the camcorder processes into video for storage. Physical size, not the number of megapixels, is the most important specification for a camcorder sensor. A bigger sensor can capture more light and use it to generate an image with good detail and more accurate colours. The size of each camcorder's sensor is listed in the table on page 100.

Most camcorders use a single CCD or CMOS sensor, which has an RGB filter to determine colour. However, some camcorders have a prism that splits the incoming light so it falls on three separate sensors, one each for red, green and blue. These three-CCD camcorders generally have superior colour accuracy and perform better in low light than single-sensor models.



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Though an HD camcorder with a big sensor is undoubtedly a good thing, storage formats can be more a matter of personal taste. Until recently, the vast majority of camcorders used MiniDV tapes to store video, but now the choices are far wider.

A MiniDV tape can store 60 minutes of footage, regardless of whether it's standard or high definition. Standard-definition video is stored in the DV format, which uses minimal video compression for great results. HD video is stored using the MPEG2-based High Definition Video (HDV) standard, which is much easier to edit than the more highly compressed Advanced Video Compression High Definition (AVCHD) format. However, the downside to tapes is that they are rather bulky, you can transfer video to a PC only in real time and you need to fast-forward and rewind them to find the parts you want.

DVD camcorders store MPEG2 video on 8cm DVD media. It's a very convenient storage method for those who want to shoot video and then play it back on a DVD player without editing. However, the small DVDs hold only 20 minutes of footage at the highest quality settings, so you'll need a bagful if you're keen to video your entire holiday. All the DVD camcorders we've seen record only standard-definition video using MPEG2 compression.

The increasing size of memory cards has made them ideal for use in compact camcorders. After recording video to a memory card, you can simply slot it into a PC's memory card reader, extract the files, edit the footage or burn it straight to DVD for long-term archiving. Both standard-definition and HD models are available, usually using MPEG2 and AVCHD compression respectively.

If you plan on shooting a lot of video, or don't want the hassle of removable media, then a hard disk is ideal. It can hold many hours of footage, even if it's high-quality HD video. Then you simply connect the camcorder to your PC via USB to archive or edit your footage. Both standard and high-definition models are available.

PORTS AND CABLES

All the models here have USB Hi-Speed ports to connect to a PC. MiniDV camcorders often have FireWire ports as well. We're happy to say we didn't have any problems transferring files from any of our test camcorders.

Sometimes you simply want to play back video you've just shot. In this case, it can be easier to hook up your camcorder to a TV using its video and audio outputs. All camcorders have AV outputs, which combine composite video and phono stereo, and these can be connected to the red, white and yellow inputs on most TVs. Some

camcorders also have S-video outputs, which give a clearer picture. The HD camcorders use HDMI and component outputs for connecting to HD TVs. See the table on page 100 for details.

AUDIO CHECK

We tested each of the camcorders for audio quality. None of them was particularly outstanding, though all managed to capture speech and music clearly enough. If you want high-quality sound then you should invest in an external microphone, but make sure your chosen camcorder has a microphone input. The table shows which connections each camcorder has.

Alternatively, you can use a specially designed microphone that is compatible with your camcorder's accessory shoe. Both Sony and Canon make these.

ASSAULT AND BATTERY

There's nothing more frustrating than running out of power at a crucial moment. We've tested all the supplied batteries by leaving the camcorders filming continuously. However, in real-world use, when you're using the zoom and autofocus, you can expect to get about two-thirds of this figure. A wide range of spare batteries, both official and third party, are available for most of the models here. We've indicated in the reviews where it's possible to fit a larger replacement.



SAMSUNG VP-MX10



£140 inc VAT
From www.dixons.co.uk

The VP-MX10 is the cheapest camcorder in the group. Its near-cylindrical shape and gloss black finish make it look more expensive than it is, but it has a removable – rather than sliding – lens cap, which dangles annoyingly. It's comfortable to hold, and the controls are well positioned. The right-hand side of the camcorder swivels by up to 150°, so you can position the hand grip at the angle you want, making it far easier to use when shooting from below shoulder height.

Controls are kept to a minimum, largely thanks to a lack of features, and it's the only camcorder here that can't take photos, though with a low-resolution 0.8-megapixel CCD that's no great loss. Video is recorded to either an SDHC or MMC+ memory card in MPEG4 format. These files can be played in Windows Media Player if you download the codec from <http://tinyurl.com/4e9u7g>. Audio was acceptable but sounded compressed, and distorted quickly when we played music at high volumes. One hour and 52 minutes of continuous recording is impressive, though, especially given the small internal battery.

The VP-MX10 uses the same-sized CCD sensor as several camcorders in this review. However, even at the highest quality setting of 12Mbit/s, the results were poor. Our indoor shots looked drab when compared with the DCR-HC62E's footage. There was also a lack of detail and lots of noise. Video taken in the sunshine looked a touch overexposed. Our biggest problem with the VP-MX10, though, was its inability to record in 16:9 widescreen despite its 16:9 LCD screen, which means that even though the display has 123,200 pixels, you'll only use around two-thirds of the resolution. A joystick alongside the LCD makes using the menu straightforward, and there are basic manual focus and exposure controls. The electronic image stabilisation worked well, which is good given the 34x optical zoom. However, the VP-MX10 struggled to focus when zoomed in or in low light conditions.

It's inexpensive, but the VP-MX10 lacks basic features such as widescreen recording and the video quality is poor.

SUMMARY

- ☒ Good battery life
- ☒ Poor-quality video
- ☒ No widescreen video

SDHC CAMCORDER SDHC/MMC+ storage, 34x optical zoom, 800,000-pixel 1/4in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out, S-video out
PART CODE VP-MX10/XEU
DETAILS www.samsung.co.uk



SONY DCR-HC62E



£218 inc VAT
From www.morecomputers.com

COMPUTER
SHOPPER
BUDGET BUY

MiniDV camcorders dominated the market for many years, so Sony has had ample time to tweak its designs. Because of this it's not surprising that the DCR-HC62E is compact, simple to use and comfortable to hold.

Though not packed with features, the camcorder has everything you need. It has a manual sliding lens cover, so there's no dangling lens cap, and controls are kept to a minimum, thanks to a touch-screen LCD that lets you adjust settings such as focus and exposure. The touch screen keeps rarely needed controls from cluttering the unit with buttons, making it suitable for casual users.

All Sony's standard-definition camcorders have the same optics, which have identical specifications and impressive 25x optical zooms. However, video quality from this camcorder is noticeably superior to that of the other two Sony camcorders in the group, thanks to DV's high-quality compression. This gives the results a sharper appearance, with better-defined edges on objects. We could see detail that simply wasn't captured by MPEG2-based models. However, in low light conditions the small CCD struggles, producing video with heavy picture noise and faded colours.

The 1/4in CCD has just over a million pixels, which isn't sufficient for a decent photo, but Sony has included a Memory Stick Pro Duo slot for snaps anyway. There are FireWire and USB ports for transferring footage to a PC for editing, but no FireWire input for copying edited footage back to tape for archiving. There are also AV and S-video outputs for connecting the camcorder to a TV. The battery is mounted on the rear of the camcorder, and so can be replaced with a larger one if required. The supplied battery lasted for a respectable one hour and 47 minutes.

If you're looking for an inexpensive camcorder but still want good-quality video, this is a good choice. MiniDV may not be the most convenient storage format, as you have to copy footage to your PC in real time, but it does offer high-quality results. The combination of good video quality and a low price makes the DCR-HC62E a Budget Buy.

SUMMARY

- ☒ Good value
- ☒ Good video quality
- ☒ Tape storage

BUDGET MINIDV CAMCORDER MiniDV cassette storage, 25x optical zoom, 1,070,000-pixel 1/4in CCD, PAL video resolution, 2.7in LCD screen, FireWire out, USB Hi-Speed interfaces, AV out, S-video out
PART CODE DCRHC62E.CEH DETAILS www.sony.co.uk



SONY DCR-DVD310E



£228 inc VAT
From www.morecomputers.com

The DCR-DVD310E has a lot in common with the MiniDV-based DCR-HC62E. It's a similar size and uses the same combination of pared-down controls and touch-screen menus. However, its menu system is a newer version, with more clearly laid-out controls.

Above the lens is a microphone for Dolby Digital 5.1 surround sound. This actually consists of only three separate pick-ups, which are then upmixed into 5.1 surround sound. The results are basic, though having the operator's voice and ambient sounds coming largely from your rear speakers is pleasing.

Behind the microphone is an accessory shoe, which takes only Sony-branded accessories such as lights and microphones. These draw power from the camcorder's battery, and you can control them from its menu system. At the back is an extendable viewfinder, which is useful if you want to fit a larger battery at the back. The supplied battery lasted for one hour and 45 minutes in our continuous recording test.

The DCR-DVD310E can record to a wide range of 8cm DVD media. Alternatively you can record to a Memory Stick Pro Duo. On either format it records MPEG2 video at up to 9Mbit/s. You'll get about 20 minutes on an inexpensive single-layer 8cm DVD, or around 55 minutes on a 4GB Memory Stick Pro Duo, which costs around £27 including VAT. You can't copy video internally from the memory card to the DVD drive.

Picture quality is acceptable for a budget model, but you can do better. The MPEG2 compression used in DVD camcorders may be more space-efficient than DV, but the results tend to have a soft appearance. Noise in the picture is reduced to help with compression, but this also suppresses fine detail.

If you want the convenience of recording straight to DVD or memory cards, then this is a good camcorder for the money, and far cheaper than any of the hard disk models. You won't get the same quality of footage as from the tape-based DCR-HC62E, but for many the ease of viewing the footage and transferring it to a PC will outweigh this drawback.

SUMMARY

- ☒ Records to DVD or memory card
- ☒ Surround-sound microphone
- ☒ Soft-looking video

DVD CAMCORDER DVD-R, DVD-RW, DVD+RW, DVD+R DL, Memory Stick Pro Duo storage, 25x optical zoom, 1,070,000-pixel 1/4in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out, S-video out
PART CODE DCRDVD310E.CEH DETAILS www.sony.co.uk



PANASONIC SDR-SW20

★★★★

£248 inc VAT

From www.electrosaver.co.uk

Panasonic's SDR-SW20 is waterproof up to a depth of 1.5m, shock proof for falls of up to 1.2m and dust proof. It's perfect if you're the kind of person who enjoys outdoor pursuits.

Unsurprisingly, the SDR-SW20 feels incredibly well made. Its simple oblong body feels very sturdy, as does the LCD screen's hinge, and the doors covering the ports are encased in rubber. Surprisingly, there's no lens cap or cover, though the recessed glass panel is scratch resistant.

Video is recorded to an SDHC card using MPEG2 compression. At the highest quality setting of 10Mbit/s, you'll get around 50 minutes of video on a 4GB SDHC card, which costs around £13 including VAT. Photos are limited to a paltry resolution of 640x480.

Video quality from the 1/6in CCD is fairly good, though it suffers from the same compression problems as many MPEG2-based camcorders, with softer edges when compared with a DV-based model. There's less noise reduction than on the DCR-DVD310E, so the resulting video looks a bit rough. The flipside of the reduced noise reduction is more visible detail and better contrast, and colours are a little richer. There's a special mode for shooting underwater, which helps to counteract blue tints. The camcorder worked well when tested in a sink, but its small CCD will struggle in darker and murkier waters.

There's a USB port for transferring files to your PC, though it would be faster to use a memory card reader. You can play back files directly using the AV output, but there's no S-video support. The small battery lasted for only an hour and 11 minutes, and you can't swap it for a larger one as it's fitted internally – where it is charged while in the camcorder, unlike most Panasonic models, which come with separate chargers.

The SDR-SW20 is expensive for a memory card-based camcorder but video looks good and it feels tough. Most people who want to record to this format would be better off with Sony's DCR-DVD310E, but if you take your camera on adventure holidays this is a fair choice.

SUMMARY

- ✓ Tough
- ✗ Quite expensive
- ✗ Short battery life

SDHC CAMCORDER SDHC storage, 10x optical zoom, 800,000-pixel 1/6in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out
PART CODE SDR-SW20EB-S
DETAILS www.panasonic.co.uk



SONY DCR-SR55E

★★★★★

£326 inc VAT

From www.morecomputers.com

This hard disk camcorder's subtle curves make it one of the best-looking models here. Given its small size, we were impressed to see that it has a Sony accessory shoe. There's also a handy docking station, which replicates the AV, USB and power connectors on the camcorder. The battery fits into a recess at the rear and lasted for a fair 94 minutes in our test.

The DCR-SR55E has 40GB of hard disk storage, holding around 10 hours of footage at its highest quality setting of 9Mbit/s. This should be enough for most people on a two-week holiday, meaning you don't have to buy or carry media with you. If you do run out of space you can record to a Memory Stick Pro Duo instead. Still photos can be stored on either the hard disk or memory card, but photos have a small 1-megapixel resolution.

It was easy to get video from the camcorder on to a PC. We connected the camcorder via USB, and then simply dragged and dropped the video files to our hard disk. Alternatively you can use the touch screen to pick and play clips using the AV and S-video outputs.

Despite the technical similarities between this and the DCR-DVD310E, we were surprised to find notable differences in their performance. These weren't huge, but in all our tests the DCR-SR55E produced a slightly crisper image, with less noise and fewer compression artefacts. It's not as impressive as either of the two DV camcorders, however.

All the standard-definition Sony camcorders in this Labs test come with Sony's NightShot Plus technology. This consists of a built-in infrared light, which illuminates the subject so that the camcorder can create the image. This is a lot less obtrusive than using a video light, but the monochrome results aren't terribly impressive.

This camcorder is very well designed, easy to use and shoots reasonable-looking standard-definition video. Panasonic's NV-GS330 produces better-quality video, but if you like to shoot lots of footage to edit on your PC, the DCR-SR55E is a better choice.

SUMMARY

- ✓ Hard disk storage
- ✓ Good standard-definition video quality
- ✗ Fairly small hard disk

HARD DISK CAMCORDER 40GB hard disk, Memory Stick Pro Duo storage, 25x optical zoom, 1,070,000-pixel 1/6in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out, S-video out
PART CODE DCRSR55E.CEH DETAILS www.sony.co.uk



SAMSUNG VP-HMX10

★★★★

£327 inc VAT

From www.bedirect.co.uk

The VP-HMX10 is the cheapest HD camcorder in the group. It looks almost identical to the standard-definition VP-MX10 and has the same body shape and clever twisting handle, but comes with a built-in lens cover, plus a touch-screen LCD for navigating the menus.

The VP-HMX10 has a 1/4.5in CMOS sensor. On the highest quality setting it records video at a resolution of 1,280x720 pixels at 12Mbit/s. This doesn't compare well on paper with most of the HD camcorders here, which can record at 1,920x1,080 pixels and at higher bit rates. However, the VP-HMX10 does capture an impressive 50 full frames per second.

The higher resolution certainly showed up plenty of detail in objects around our office. However, it suffered in comparison with the HDC-SD9's better detail, lower noise and more vibrant colours. Even the better standard-definition camcorders, such as Panasonic's NV-GS330 and Canon's DC50, produced superior results with more clearly defined edges and more vibrant colours. The VP-HMX10's results looked a little drab by comparison.

You can take respectable photos of up to 3 megapixels, but there's only an LED lamp and no flash. Video and photos are recorded to either an SDHC or MMC+ memory card. The battery's one hour and 18 minutes running time wasn't terribly impressive, and its internal slot means you can't fit a bigger one.

The touch-screen LCD works well enough, but it isn't as well designed as the Sony's and you may occasionally choose the wrong option by accident. Opening the LCD reveals a flap, beneath which is an HDMI port for easy connection to an HD TV. There are also component, S-video and AV outputs. A microphone input is supplied, though there's no shoe for mounting a microphone.

At first glance the VP-HMX10 looks good value, as it's over £100 cheaper than Panasonic's high-definition HDC-SD9. But resolution isn't everything when it comes to video quality, and you'll get better results from the standard-definition NV-GS330.

SUMMARY

- ✓ Compact; inexpensive
- ✗ Mediocre HD video
- ✗ Poor battery life

HD SDHC CAMCORDER SDHC/MMC+ storage, 10x optical zoom, 1,560,000-pixel 1/4.5in CMOS, 1,280x720 video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out, component out, HDMI out PART CODE VP-HMX10/XEU DETAILS www.samsung.co.uk



PANASONIC NV-GS330

★★★★★

£335 inc VAT

From www.purelygadgets.co.uk

The NV-GS330 is one of only two camcorders in the group with three CCDs, and it's immediately apparent in the resulting video. Indoors we saw great colour accuracy and an impressive lack of noise in low-light conditions. During outdoor testing there was plenty of detail in the bricks of nearby buildings, and these had an appropriately orange hue. It's easily superior to every non-HD camcorder in the group, except arguably Canon's DC50.

Its video looks great, but the NV-GS330 looks distinctly old-fashioned. It's fairly large and heavy, and uses a lens cap to protect its optics rather than a sliding cover. Controls are thoughtfully positioned, though. Panasonic's dial and joystick control system is very easy to master, with manual shutter speed, aperture control and focus all easily available.

The 10x optical zoom isn't terribly impressive, but there is optical image stabilisation. This is superior to the electronic stabilisation used on many camcorders, as it doesn't require the use of a buffer area on the CCD, so more of the sensor can be used to capture video. The camera is capable of taking some fairly decent snapshots, though the lack of a flash means you won't be able to leave your digital stills camera at home.

An SDHC memory card slot in the bottom of the camcorder stores any photos, but as with all DV camcorders you can't store video on it. A separate charger is provided, letting you charge one battery while shooting with a spare. The supplied battery lasted for an excellent one hour and 53 minutes in our continuous recording test. A cold shoe lets you mount accessories, but disappointingly there's no external microphone input.

The design of this camcorder probably won't fill you with desire, and it's expensive for a tape-based model. If you want the convenience of fast video transfer to a PC, Sony's DCR-SR55E is a better choice. However, you can't shoot better-looking video for this price, so if video quality is paramount and you don't mind waiting for video to transfer to your PC, it's a fine choice.

SUMMARY

- ✓ Great quality standard definition video
- ✓ Good battery life
- ✗ Tape storage

MINIDV CAMCORDER MiniDV cassette storage, 10x optical zoom, 800,000-pixel 3x 1/4in CCD, PAL video resolution, 2.7in LCD screen, FireWire out, USB Hi-Speed interfaces, AV out, S-video out **PART CODE** NV-GS330EB-S **DETAILS** www.panasonic.co.uk



CANON DC50

★★★★

£394 inc VAT

From www.ebuyer.com

The DC50 is the most expensive standard-definition camcorder here. Its surprising bulk is offset by pleasing curves that help it sit comfortably in the hand. The front of the camcorder is dominated by a large lens, which lets plenty of light strike the 1/2.7in CCD inside.

Video quality is far superior to that from the other standard-definition DVD and hard disk models. Edges are well defined and there's almost no picture noise in well-lit conditions, meaning the video compression doesn't have to struggle to work out what's noise and what's detail. It's not quite as impressive as the NV-GS330 in terms of colour accuracy, but in low-light conditions they're fairly evenly matched. The DC50 had less picture noise, but the NV-GS330 retained more colour.

The big CCD has over five million pixels, meaning this camcorder can also take decent photos. There's a proper flash, too. Alongside this is a video light for shooting in near-darkness, and there's an automatic lens cover so you don't have to worry about leaving the lens exposed.

Video must be captured to DVD, and photos can be stored on either a DVD or a miniSD card. Disappointingly, there's no option to store video on a memory card. Inexpensive single-layer DVDs are limited to around 20 minutes of footage at the highest quality setting of 10Mbit/s. This means that you'll need to take a lot of discs to get through a two-week holiday.

The battery is tucked neatly away and is accessed simply by opening the LCD. There's no room for a bigger battery, though the supplied one lasted for an acceptable hour and 28 minutes in our continuous shooting test. There's no accessory shoe or surround sound microphone, though you do benefit from optical image stabilisation.

At this price you should expect plenty of extras and good video quality, and the DC50 offers both. However its price is fairly close to that of Panasonic's tiny HDC-SD9, so we'd recommend you find the extra cash for the latter instead.

SUMMARY

- ✓ Great standard-definition video quality
- ✓ Takes decent photos
- ✗ Expensive for a standard-definition camcorder

DVD CAMCORDER DVD-R, DVD-RW, DVD-R DL storage, 10x optical zoom, 5,390,000-pixel 1/2.7in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out **PART CODE** 2057B004AA **DETAILS** www.canon.co.uk



PANASONIC HDC-SD9

★★★★★

£430 inc VAT

From www.digitalrev.com

COMPUTER SHOPPER
BEST BUY

If there were an award for the most attractive and compact camcorder, the HDC-SD9 would win it. Despite being small, it's still comfortable to hold and, best of all, it doesn't sacrifice video quality for portability.

It has three CCDs with 560,000 pixels each, but working together they generate progressive 25fps video with a resolution of 1,920x1,080. The results are a huge leap up from those of the standard-definition camcorders here. There's a wealth of extra detail to see, though colours can be a little oversaturated.

Video is compressed using the AVCHD standard, with a bit rate of 17Mbit/s at the highest quality setting. We couldn't see any serious compression problems with the video, though the HDC-SD9 doesn't deal with fast pans as well as Canon's HV30. Video is stored on an SDHC card. You'll get around two hours on a 16GB SDHC, which costs around £50.

The camcorder's LCD display has more than twice the amount of detail of most displays here. This gives you a much better idea of what you're recording. Due to the camcorder's small size, the joystick that controls the menus is positioned perpendicular to the screen, on the side of the body. This makes navigating the menus less intuitive, but shouldn't trouble the kind of casual users the camcorder is aimed at.

Such users are also unlikely to be bothered by the lack of a mic input or accessory shoe. They will appreciate the face-tracking feature that automatically adjusts focus and exposure, making the most of friends' mugs.

The built-in microphone records to 5.1-channel Dolby Digital, though gives no real advantage over Sony's three-channel system. Other handy features include an automatic lens cover and optical image stabilisation. The latter works well, keeping shots steady even at the maximum 10x zoom setting. The battery lasted for a respectable one hour and 40 minutes, and larger replacements can be fitted.

Canon's HV30 may produce higher-quality video, but the HDC-SD9's compact shape, convenient storage and lower price make it a Best Buy.

SUMMARY

- ✓ Compact; surround-sound microphone
- ✓ Good-quality HD video
- ✗ Poorly positioned joystick

HD SDHC CAMCORDER SDHC storage, 10x optical zoom, 560,000-pixel 3x 1/4in CCD, 1,920x1,080 video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out, component out, mini HDMI out **PART CODE** HDC-SD9EB-S **DETAILS** www.panasonic.co.uk



PANASONIC SDR-H60

★★★

£450 inc VAT

From www.abc-digital-cameras.co.uk

This hard disk camcorder may not have the refined looks of Sony's DCR-SR55E, but it has impressive features. The most obvious of these is the 60GB hard disk, which holds 14 hours of video at the highest quality setting of 10Mbit/s.

As well as the hard disk, you get a massive 50x optical zoom, letting you fill the frame with distant subjects. Thankfully, the camcorder also has optical image stabilisation, which almost completely eliminates camera shake when shooting with the zoom on. What's more, unlike electronic stabilisation, it doesn't reduce image quality when applied.

Unfortunately, video quality wasn't as good as we'd hoped. In a direct comparison with Sony's DCR-SR55E, this camcorder's images had more noise both indoors and outdoors. This was compounded by compression issues, reducing the level of perceivable detail. Colours were a little off as well, with bricks appearing more purple than orange.

The battery is neatly tucked away in a battery bay, and slides out from the bottom of the camcorder. However, this means you can't fit a larger replacement. Thankfully, it lasted a very respectable one hour and 39 minutes in our test. Like most Panasonic models, the SDR-H60 comes with a separate charger.

A USB port lets you connect to your PC, and getting recordings off the camcorder was a simple drag-and-drop procedure. The MPEG2-compressed files can be placed directly into most editing software, but you may need to change the file extension from .mod to .mpg first. There's no S-video output, so you're stuck with a lower-quality composite signal through the AV output when connecting to a TV.

There's an SDHC memory card slot should you ever need extra storage capacity. Photos can be taken, but the resolution is limited to 640x480. Settings are easily handled using a small joystick, which can be used to set aperture and shutter speeds manually.

The SDR-H60 has impressive features, but video quality didn't meet our expectations. If you want a hard disk camcorder, you should buy Sony's cheaper DCR-SR55E instead.

SUMMARY

- ✓ Big hard disk
- ✓ 50x optical zoom
- ✗ Poor video quality; expensive

HARD DISK CAMCORDER 60GB hard disk, SDHC storage, 50x optical zoom, 800,000-pixel 1/4in CCD, PAL video resolution, 2.7in LCD screen, USB Hi-Speed interfaces, AV out **PART CODE** SDR-H60EB-S **DETAILS** www.panasonic.co.uk



CANON HV30

★★★★★

£645 inc VAT

From www.kikatek.com

Of all the high-definition camcorders in the Labs, the HV30 is most likely to appeal to video enthusiasts. The shoe accepts standard accessories, as well as controlling and powering Canon's own range of add-ons. There's a microphone input for connecting an external microphone for higher-quality audio. There's also a dial near the lens dedicated to manual focus control.

The LCD has around twice the resolution of the screens on most standard-definition camcorders. This is useful when using the manual focus, and there's a focus assist button that zooms on the screen for fine tuning.

Video is stored to MiniDV tapes using the MPEG2-based HDV standard at around 25Mbit/s. You get 60 minutes on each tape, but the resolution is limited to 1,440x1,080 pixels, rather than the 1,920x1,080 resolution of most AVCHD camcorders. Despite this, video quality was the best in the group. We could see more detail in our indoor footage than with any other high-definition model. There was almost no picture noise, and colours looked accurate. The big 1/2.1in CMOS picked up plenty of light, so footage taken in low light had little noise and plenty of colour.

The HV30 can take pictures at resolutions of up to 3.1 megapixels, and the results are good enough for snaps, which are then stored on a miniSD card. There's also a flash and an LED video light, so you can take photos and shoot video in most lighting conditions.

The battery is mounted in a recess at the rear of the camcorder, and it lasted longer than any other unit in this test, managing one hour and 54 minutes. A larger battery can be fitted, but it would make it hard to get your eye to the non-extendable viewfinder.

The HV30 is a rather large unit, and it feels a bit cheap, certainly compared with Panasonic's HDC-SD9. However, if you want the best video quality and a great deal of control over how you compose your shots – and you don't mind the lengthy process of transferring MiniDV to your PC – the HV30 is the camcorder to buy.

SUMMARY

- ✓ Great-quality high-definition video
- ✓ Long battery life
- ✗ Rather bulky; tape storage

HDV CAMCORDER MiniDV cassette storage, 10x optical zoom, 2,960,000-pixel 1/2.1in CMOS, 1,440x1,080 video resolution, 2.7in LCD screen, FireWire in/out, USB Hi-Speed interfaces, AV in/out, component out, HDMI out **PART CODE** 2681B006 **DETAILS** www.canon.co.uk



SONY HDR-SR12E

★★★★★

£800 inc VAT

From www.purelygadgets.co.uk

There are smaller, better-performing camcorders in this group but nothing as desirable as the HDR-SR12E. It looks incredible and feels tough, but it's the large 3.2in LCD that got us really excited.

The screen's incredible 1,920x480 layout means its horizontal resolution matches the camcorder's horizontal HD resolution. This provides a great idea of what final results will look like, and helps immensely with manual focusing. It is also a touch screen, and the extra space makes navigating menus a breeze. You can also use it to select focus points in a scene, or alternatively use face tracking, which will adjust focus and exposure automatically for the best results. One drawback to having a large LCD is a low battery life, which is limited to only an hour and a half.

Video is shot at 1,920x1,080 and then compressed to 16Mbit/s using the AVCHD standard. Unlike the other HD camcorders here, the HDR-SR12E can't shoot in progressive mode, so only produces interlaced video. This shouldn't be a problem as long as your TV has good de-interlacing, although you may see problems with fast-moving objects. Video is impressively life-like, with plenty of detail and vibrant colours, but it can't quite match the HV30's video quality.

There's a massive 120GB hard disk, which will store almost 15 hours of footage at the highest quality setting. There's also a Memory Stick Pro Duo slot, though we can't see anyone ever needing it. Photo quality is among the best in the group, alongside the DC50, thanks to a 5.6-megapixel sensor. A proper flash is provided, but there's no video light.

The top of the camcorder has a number of useful features. Sound quality from the surround-sound microphone is good, there's a sliding flap that covers a Sony accessory shoe, and the viewfinder at the back tilts upwards for easy access. It's a great camcorder with a massive storage capacity and a great LCD, but Canon's HV30 has better image quality, and Panasonic's HDC-SD9 is better value.

SUMMARY

- ✓ Big LCD and hard disk
- ✓ Good video quality; surround sound microphone
- ✗ Very expensive

HD HARD DISK CAMCORDER 120GB hard disk, Memory Stick Pro Duo storage, 12x optical zoom, 5,660,000-pixel 1/3.1in CMOS, 1,920x1,080 video resolution, 3.2in LCD screen, USB Hi-Speed interfaces, AV out, S-video out, component out, HDMI out **PART CODE** HDR-SR12E.CEH **DETAILS** www.sony.co.uk

CAMCORDERS

COMPUTER
SHOPPER
BUDGET BUY

MANUFACTURER	SAMSUNG	SONY	SONY	PANASONIC	SONY	SAMSUNG
Model	VP-MX10	DCR-HC62E	DCR-DVD310E	SDR-SW20	DCR-SR55E	VP-HMX10
Rating	★	★★★★★	★★★★	★★★	★★★★	★★★
RECORDING						
Optical zoom	34x	25x	25x	10x	25x	10x
Digital zoom	1,200x	2,000x	2,000x	700x	2,000x	20x
Sensor	1/4in CCD	1/4in CCD	1/4in CCD	1/4in CCD	1/4in CCD	1/4in CMOS
Sensor pixels	800,000	1,070,000	1,070,000	800,000	1,070,000	1,560,000
Widescreen mode	Anamorphic	Anamorphic	Anamorphic	Anamorphic	Anamorphic	Native
LCD screen size	2.7in	2.7in	2.7in	2.7in	2.7in	2.7in
Viewfinder	None	Colour	Colour	None	None	None
Video lamp	No	No	No	No	No	Yes
Video recording format	MPEG4	DV	MPEG2	MPEG2	MPEG2	H.264
Video recording media	SDHC/MMC+	MiniDV cassette	DVD-R, DVD-RW, DVD+RW, DVD+R DL, Memory Stick Pro Duo	SDHC	40GB hard disk, Memory Stick Pro Duo	SDHC/MMC+
Sound	ADPCM	16-bit stereo	Dolby Digital 5.1	MPEG1 Layer2	Dolby Digital Stereo	AAC 28KHz stereo
Video resolutions	PAL	PAL	PAL	PAL	PAL	1,280x720
Maximum still image resolution	N/A	1,152x864	1,152x864	640x480	1,152x864	2,048x1,536
Memory slot (card supplied)	None (none)	Memory Stick Pro Duo (none)	Memory Stick Pro Duo (none)	SDHC (none)	Memory Stick Pro Duo (none)	SDHC/MMC+ (none)
Camera flash	No	No	No	No	No	LED
PHYSICAL						
Digital inputs/outputs	USB Hi-Speed	FireWire out, USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed
Analogue inputs/outputs	AV out, S-video out	AV out, S-video out	AV out, S-video out	AV out	AV out, S-video out	AV out, component out, HDMI out
Other connections	Charge jack	Charge jack	Charge jack, Sony accessory shoe	Charge jack	Charge jack, Sony accessory shoe, docking port	Charge jack, microphone, docking port
Battery type	7.4V 850mAh Li-ion	7.2V 680mAh Li-ion	7.4V 680mAh Li-ion	3.6V 1,000mAh Li-ion	7.2V 680mAh Li-ion	7.4V 850mAh Li-ion
Battery life	1h 52m	1h 47m	1h 45m	1h 11m	1h 34m	1h 18m
Battery charging position	Camcorder	Camcorder	Camcorder	Camcorder	Camcorder	Camcorder
Size (HxWxD)	62x60x121mm	85x63x114mm	89x55x130mm	63x34x115mm	77x76x113mm	68x62x118mm
Weight	280g	390g	400g	224g	360g	310g
BUYING INFORMATION						
Warranty	One year RTB	One year RTB	One year RTB	One year RTB	One year RTB	One year RTB
Price including VAT	£140	£218	£228	£248	£326	£327
Supplier	www.dixons.co.uk	www.morecomputers.com	www.morecomputers.com	www.electrosaver.co.uk	www.morecomputers.com	www.bedirect.co.uk
Details	www.samsung.co.uk	www.sony.co.uk	www.sony.co.uk	www.panasonic.co.uk	www.sony.co.uk	www.samsung.co.uk
Part code	VP-MX10/XEU	DCRHC62E.CEH	DCRDVD310E.CEH	SDR-SW20EB-S	DCRSR55E.CEH	VP-HMX10/XEU

COMPUTER
SHOPPER
BEST BUY

MANUFACTURER	PANASONIC	CANON	PANASONIC	PANASONIC	CANON	SONY
Model	NV-GS330	DC50	HDC-SD9	SDR-H60	HV30	HDR-SR12E
Rating	★★★★	★★★	★★★★★	★★	★★★★★	★★★★★
RECORDING						
Optical zoom	10x	10x	10x	50x	10x	12x
Digital zoom	700x	200x	700x	2,500x	200x	150x
Sensor	3x 1/4in CCD	1/2in CCD	3x 1/4in CCD	1/4in CCD	1/2in CMOS	1/3in CMOS
Sensor pixels	800,000	5,390,000	560,000	800,000	2,960,000	5,660,000
Widescreen mode	Anamorphic	Anamorphic	Native	Anamorphic	Native	Native
LCD screen size	2.7in	2.7in	2.7in	2.7in	2.7in	3.2in
Viewfinder	Colour	Colour	None	None	Colour	Colour
Video lamp	No	Yes	No	No	Yes	No
Video recording format	DV	MPEG2	AVCHD	MPEG2	HDV	AVCHD
Video recording media	MiniDV cassette	DVD-R, DVD-RW, DVD-R DL	SDHC	60GB hard disk, SDHC	MiniDV cassette	120GB hard disk, Memory Stick Pro Duo
Sound	16-bit stereo	Dolby Digital Stereo	Dolby Digital 5.1	Dolby Digital Stereo	MPEG1-Layer2	Dolby Digital 5.1
Video resolutions	PAL	PAL	1,920x1,080	PAL	1,440x1,080	1,920x1,080
Maximum still image resolution	2,048x1,512	2,592x1,944	1,920x1,080	640x480	2,048x1,536	3,680x2,760
Memory slot (card supplied)	SDHC (none)	MiniSD (none)	SDHC (none)	SDHC (none)	MiniSD (none)	Memory Stick Pro Duo (none)
Camera flash	No	Yes	Yes	No	Yes	Yes
PHYSICAL						
Digital inputs/outputs	FireWire out, USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	USB Hi-Speed	FireWire in/out, USB Hi-Speed	USB Hi-Speed
Analogue inputs/outputs	AV out, S-video out	AV out	AV out, component out, mini HDMI out	AV out	AV in/out, component out, HDMI out	AV out, S-video out, component out, HDMI out
Other connections	Power jack, accessory shoe (cold)	Charge jack	Power jack	Power jack	Charge jack, microphone, accessory shoe (powered)	Charge jack, microphone, Sony accessory shoe, docking port
Battery type	7.2V 640mAh Li-ion	7.4V 850mAh Li-ion	7.2V 1,320mAh Li-ion	7.2V 770mAh Li-ion	7.4V 1,100mAh Li-ion	7.2V 1,000mAh Li-ion
Battery life	1h 53m	1h 28m	1h 40m	1h 39m	1h 30m	1h 30m
Battery charging position	Charger	Camcorder	Charger	Charger	Camcorder	Camcorder
Size (HxWxD)	77x84x145mm	90x62x130mm	67x65x126mm	70x67x116mm	82x88x138mm	76x83x138mm
Weight	450g	480g	275g	340g	535g	560g
BUYING INFORMATION						
Warranty	One year RTB	One year RTB	One year RTB	One year RTB	One year RTB	One year RTB
Price including VAT	£335	£394	£430	£450	£645	£800
Supplier	www.purelygadgets.co.uk	www.ebuyer.com	www.digitalrev.com	www.abc-digital-cameras.co.uk	www.kikatek.com	www.purelygadgets.co.uk
Details	www.panasonic.co.uk	www.canon.co.uk	www.panasonic.co.uk	www.panasonic.co.uk	www.canon.co.uk	www.sony.co.uk
Part code	NV-GS330EB-S	2057B004AA	HDC-SD9EB-S	SDR-H60EB-S	2681B006	HDR-SR12E.CEH

Labs verdict Camcorders

There's a camcorder for everyone here, but a few of the models stand out. If you want to shoot a lot of video but don't want to spend a fortune, a standard-definition hard disk camcorder is the way to go. Sony's DCR-SR55E is a good choice: compact, easy to use, and able to store 10 hours of video. For occasional users, a MiniDV camcorder offers value for money. Sony's DCR-HC62E is great, with a simple interface,

good battery life and high-quality video. It's also good value, so wins a Budget Buy.

If you're more serious, an HD model is worth the extra money. Canon's HV30 has all the features you need to let your imagination run riot, and it produces higher-quality video than any camcorder here. However, for convenience, value and ease of use, Panasonic's excellent HDC-SD9 is impossible to beat. It's a Best Buy. **CS**

SONY
DCR-HC62E
★★★★★



PANASONIC
HDC-SD9
★★★★★

